Politecnico di Torino

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ELECTRICAL, ELECTRONICS AND COMMUNICATIONS ENGINEERING

PNRR - ML for zero-touch optical network automation and management

Funded By	MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] Politecnico di TORINO [P.iva/CF:00518460019]
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Context of the research activity	Future optical transport networks shall be capable of massively scaling capacity to accommodate traffic requirements generated by future applications such as the 6G infrastructure. Thus, they will require a seamless software-defined-networking control, relying on optical layer abstraction and pervasive telemetry data collection to feed machine learning algorithms for resource optimization and fault management, that will lead to a sustainable zero-touch optical network. PNRR M4C2, Investimento 1.3 - Avviso n. 341 del 15/03/2022 - PE0000001 RESearch and innovation on future Telecommunications systems and networks, to make Italy more smart (RESTART) - CUP E13C22001870001
Objectives	The goal of this research activity is building a framework for an AI-assisted autonomic network supporting zero-touch real-time operations, i.e., the development of an autonomic control plane for the optical network that comprises a closed-control-loop engine able to collect and analyze data in order to make decisions, and act on the network devices. Control-loops will be implemented at various levels, massively relying on the use of monitoring data and on the application of AI/ML approaches.
Skills and competencies for the development of the activity	Knowledge of Machine Learning; advanced programming skills; background knowledge on optical networks is preferential;